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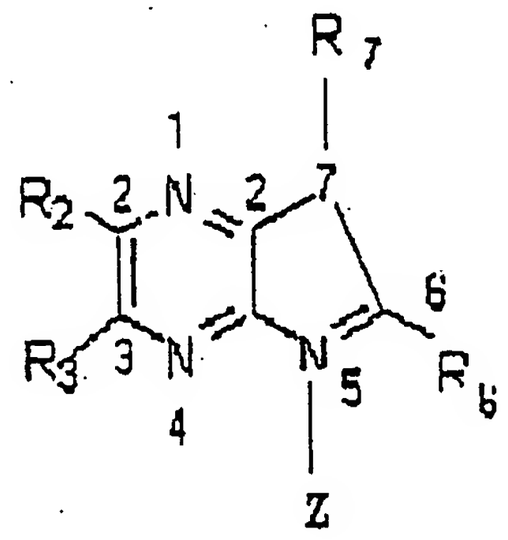
BT01 Rec'd PCT/PTO 08 FEB 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) Pyrrolo [2, 3b]—pyrazine derivatives having the general formula (I):



(I)

wherein :

- R2 and R3 are identical or different, and represent H, C1-C6 alkyl, said alkyl being a straight or branched - chain alkyl, which can be substituted,
- R6 is an optionally substituted aromatic cycle Ar or a cycloalkyl, said cycloalkyl being optionally substituted by an aryl group which can also be substituted,
- R7 is H, C1-C6 alkyl, $(alk.)_n$-hal., CH_2-CH = CH_2, CH_2-cycloalkyl, CH_2-Ar, with "alk." being a C1-C6 alkylene group, n being 1-6,
- Z is H or CH_3.

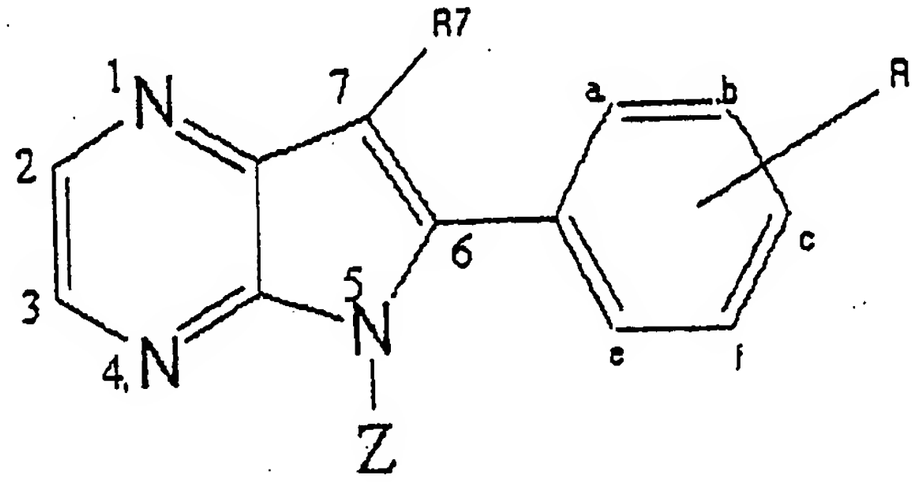
2. (original) The pyrrolo [2, 3b]—pyrazine derivatives of claim 1, wherein Ar is phenyl, naphtyl, furyl, thienyl, pyridyl, cyclopropyl phenyl, phenyl dioxolyl.

3. (original) The pyrrolo [2, 3b]-pyrazine derivatives of claim 1, wherein the Cycloalkyl group is a C3-C6 cycloalkyl.

4. (currently amended) The pyrrolo [2, 3b]—pyrazine derivatives of ~~anyone of claims 1 to 3~~ claim 1, wherein the substitutions groups are selected in the group comprising one or more halogen (F,Cl, Br, I, CF_3), OH, NH_2, N(H, alkyl), $N(alkyl)_2$, O-alkyl, COOH, COO-alkyl, $CONH_2$, CON (H, alkyl), $CON(alkyl)_2$, $NHCONH_2$, NHCON (H, alkyl), NHCON $(alkyl)_2$, N (alkyl) $CONH_2$,N(alkyl)CON(H,alkyl), $N(alkyl)CON(alkyl)_2$, alkoxy, CN, $O\text{-}SO_2\text{-}NH_2$, $O\text{-}SO_2\text{-}N$ (H, alkyl), $\text{-}O\text{-}SO_2\text{-}N$ $(alkyl)_2$, SH,S-alkyl.

5. (currently amended) The pyrrolo [2,3b]-pyrazine derivatives of ~~anyone of claims 1 to 4~~ claim 1, with an $IC_{50} \leq 10\mu M$ with respect to CDK1/cyclin B and/or CDK5/p25 and/or GSK-3 and having formula (II):

R7



(II)

wherein:

- the phenyl group at position 6 is substituted by one, two or three R substituents selected in the group comprising:

- H, -OH, alkyl, -O alkyl, hal., $-NH_2$, -N(H,alkyl), $-N(alkyl)_2$, $-O-SO_2-NH_2$, $-O-SO_2-N$ (H, alkyl), $-O-SO_2-N(alkyl)_2$, -COOH, -COO-alkyl, $CONH_2$, -CON(H,alkyl), -$CON(alkyl)_2$,

- R7 is H, alkyl, $(alk.)_n$ hal., $-CH_2-CH = CH_2$, $(alk.)_n$- cycloalkyl, alk.-Ar, and

- Z is H or CH_3.

6. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 5, corresponding to the derivatives of formula (II) wherein

R = H, OH, alkoxy, hal., alkyl and R7 = H or to derivatives wherein R = alkoxy, and R7 = alkyl, $(alk.)_n$ -hal., $CH_2-CH = CH_2$, or

R = $O-SO_2-N-(alkyl)_2$, hal., OH, R7 = alkyl, n = 1-3 and Z = H.

7. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 5, having an IC_{50} value ≤ 5µM with respect to CDK1/cyclin B, CDK5/p25 and GSK-3.

8. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 7, corresponding to the derivatives of formula (II) wherein R=H, p-alkoxy, p- and m-alkoxy, p-OH, p-hal., p-alkyl, p-0-$S0_2$-N $(alkyl)_2$, R7 is alkyl, $(alk.)_n$ -hal., CH_2-CH = CH_2, or H, Z is H, and n = 1-3.

9. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 8, corresponding to compounds wherein (a-e correspond to the position of R on the phenyl group):

- the phenyl group is unsubtituted and R7 is H, or
- Ra, Rb and Rd = H, Rc = alkoxy, OH or hal., and R7 = H, or
- Ra, Rb and Rd = H, Rc = alkoxy and R7 = alkyl, or
- Ra and Rd = H, Rb and Rc = alkoxy and R7 = alkyl, or
- Ra, Rb and Rd = H, Rc alkoxy and R7 = alkyl, or
- Ra, Rb and Rd = H, Rc = alkoxy, OH, hal. and R7 = alkyl, $(alk.)_n$-hal, CH_2-$CH = CH_2$, or
- Ra, Rb and Rd= H, Rc = OH, R7 = alkyl.

10. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 5 having an $IC_{50} \leq$ 1µM with respect to CDK1/cyclin B, CDK5/p25 and GSK-3.

11. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 10, corresponding to derivatives of formula (II) wherein R is p-alkoxy, p-0-SO_2-N-$(alkyl)_2$, p-OH and R7 is alkyl.

12. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 11, corresponding to compounds with Ra, Rb and Rd = H, Rc = alkoxy, O-SO_2-$N(alkyl)_2$, or OH and R7 = alkyl.

13. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 5, having an $IC_{50} \leq$ 0.5 µM with respect to CDK1/cyclin B, CDK5/p25 and GSK-3, wherein Ra, Rb and Rd =

H, Rc = alkoxy or OH and R7 = alkyl.

14. (currently amended) The pyrrolo [2, 3b]-pyrazine derivatives of ~~anyone of claims 1 to 4~~ claim 1, has an IC_{50} value ≤ 10µM with respect to CDK1/cyclin B and CDK5/p25 or GSK-3, or to CDK5/p25 and GSK-3.

15. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 14, having an IC_{50} ≤ 10µM with respect to CDK5/p25 and GSK-3.

16. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 15, wherein R = H, OH, alkoxy, hal., alkyl, O-SO_2-N(alkyl)$_2$, and R7 = H, alkyl, (alk.)$_n$-hal., $CH_2CH = CH_2$.

17. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 15, having an IC_{50} value ≤ 5µM with respect to CDK5/p25 and GSK-3, with R is H, p-alkoxy, OH, hal., O-SO_2-N-(alkyl)$_2$ and R7 is H, alkyl, (alk.)$_n$, hal., CH_2-$CH = CH_2$.

18. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 17, having Ra, Rb, Rc, Rd and R7 = H, or Ra, Rb and Rd = H, Rc = alkoxy, hal., (alk.)$_n$ -hal., or OH and R7 = H, or Ra, Rb and Rd = H, Rc = alkoxy or OSO_2-N(alkyl)$_2$, hal., OH and R7 = alkyl, or Ra and Rd = H, Rb and Rc = alkoxy and R7 = alkyl.

19. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 15, having an IC_{50}

value ≤ 1μM with respect to CDK5/p25 and GSK-3, with R = p-alkoxy, p- and m-dialkoxy, hal., p-O-SO_2-N(alkyl)$_2$, p-OH and R7 = H or alkyl.

20. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 19, herein Ra, Rb, Rd = H, Rc = alkoxy and R7 = alkyl, or Ra and Rd = H, Rb and Rc = alkoxy and R7 = alkyl, or Ra, Rb and Rd = H, Rc = O-SO_2-N(alkyl)$_2$ or OH and R7 = alkyl.

21. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 15, having an IC_{50} ≤ O.5μM with respect to CDK5/p25 and GSK-3, with Ra, Rb, and Rd = H, Rc = alkoxy or OH, and R7 = alkyl.

22. (original) The pyrrolo [2,3b)-pyrazine derivatives of claim 14, wherein said derivatives have an IC_{50} ≤ 10μM with respect to CDK1 and GSK3, with R = H, OH, akoxy, hal., alkyl, CN, O-SO_2-N(alkyl)$_2$ and R7 = H, alkyl, (alk.)$_n$-hal, CH_2-CH = CH_2, alk. - cycloalkyl, alk. -aryl.

23. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 22, wherein said derivatives have an IC_{50} ≤ 5μM with respect toCDK1 and GSK-3, with R = H, p-alkoxy, p- and m-alkoxy, p-OH, p-hal., p-O-SO_2-N(alkyl)$_2$, p-CN, and R7 = H or alkyl, (alk.)$_n$ hal., CH_2-CH = CH_2, (alk.)$_n$-cycloalkyl, (alk.)$_n$-aryl.

24. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 23, wherein said

derivatives have Ra, Rb and Rd = H,

Rc = alkoxy, OH, hal., alkyl, CN and R7 = H, or Ra, Rb, Rd = H,

Rc = alkoxy and R7 = alkyl, $(alk.)_n$-hal. or CH_2-CH = CH_2, or Ra and Rd = H, Rb and Rc = alkoxy and R7 = alkyl, or Ra, Rb and Rc = H, Rd = O-SO_2-N-$(alkyl)_2$, and R7 = alkyl, or Ra, Rb and Rd = H, Rc = hal. and R7 = $(alk.)_n$-aryl.

25. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 22, having an IC_{50} value ≤ 1µM with respect to CDK1 and GSK-3, with R = p-alkoxy, p-O-$S0_2$-N $(alkyl)_2$, p-hal., H, p-OH, R7 = alkyl, or $(alk.)_n$-hal, CH_2-CH = CH_2, $(alk.)_n$-cycloalkyl, $(alk.)_n$-aryl.

26. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 25, wherein Ra, Rb and Rd = H, Rc = alkoxy, OH, O-$S0_2$-N$(alkyl)_2$, hal. and R7 = alkyl, CH_2-CH = CH_2, CH_2-cycloalkyl.

27. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 22, wherein said derivatives have an IC_{50} value ≤ 0.5µM with respect to CDK1/cyclin B and GSK-3, with Ra, Rb and Rd = H, Rc = alkoxy or OH and R7 = alkyl.

28. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 14, wherein said derivatives have an IC_{50} ≤ 10µM with respect to CDK1/cyclin B and CDK5/p25, with R = H, OH, alkoxy, hal., alkyl, O-SO_2.N$(alkyl)_2$ and R7 = H, alkyl, $(alk.)_n$-hal., CH_2.CH = CH_2.

29. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 28, having an $IC_{50} \leq$ 5μM with respect to CDK1/cyclin B and GSK-3, and R is preferably H, O-alkoxy, p-alkoxy, m- and p-alkoxy, p-OH., p-hal., p-O-SO_2-N(alkyl)$_2$ and R7 is H, alkyl, (alk.)$_n$- hal., CH_2.CH = CH_2.

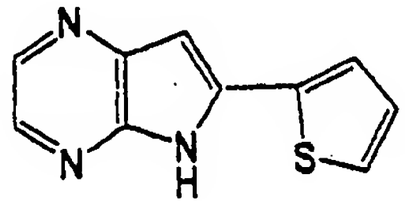
30. (original) The pyrrolo [2,3b]-pyrazine derivatives of claim 29, wherein Ra, Rb, Rc, Rd and R7 = H, or Ra = OH and Rb, Rc, Rd and R7 = H, or Rc, Rb and Rd = H, Rc = alkoxy, OH or hal. and R7 = H, (alk.)$_n$-hal., CH_2-CH = CH_2, alkyl, or Ra and Rd = H, Rb and Rc = alkoxy and R7 = H, or Ra, Rb and Rd = H, Rc = O- SO_2-N-(alkyl)$_2$ or hal. and R7 = alkyl.

31. (original) The Pyrrolo [2,3b]-pyrazine derivatives of claim 28, wherein said derivatives have an $IC_{50} \leq$ 1μM with respect to CDK1/cyclin B and GSK-3, and R = p-alkoxy, p-O-SO_2-N(alkyl)$_2$, p-hal., p-OH and R7= alkyl.

32. (original) The pyrrolo [2, 3b]-pyrazine derivatives of claim 31, wherein Ra, Rb and Rd = H, Rc = alkoxy OH or O-S0$_2$-N(alkyl)$_2$ and R7 = alkyl.

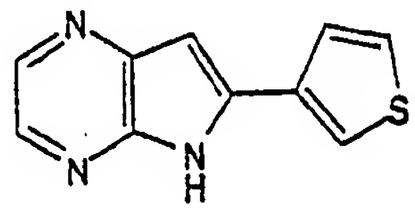
33. (original) The pyrrolo (2,3b]-pyrazine derivatives of claim 28, wherein said derivatives have an $IC_{50} \leq$ 0.5μM with respect to CDK1/cyclin B and GSK-3, and Ra, Rb, and Rd = H, Rc =alkoxy or OH and R7 = alkyl.

34. (currently amended) The pyrrolo [2,3b]-pyrazine derivatives of ~~anyone or claims 1 to 4~~ claim 1, with an $IC_{50} \leq 10\mu M$ with respect to CDK1/cylcin B, CDK5 and GSK-3 has formula (III), and even $\leq 5\mu M$ with respect to CDK5/p25 and GSK-3.



(III)

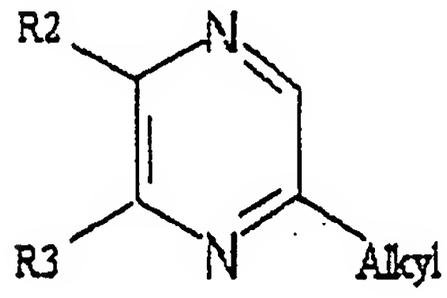
35. (currently amended) The pyrrolo [2, 3b]-pyrazine derivatives of ~~anyone of claims 1 to 4~~ claim 1, having formula IV with an $IC_{50} \leq 5\ \mu M$ with respect to CDK1/cyclin B, CDK5/p25 and GSK-3, and an IC_{50} value $\leq 1\mu M$ with respect to CDK5/p25 and GSK-3.



(IV)

36. (currently amended) The pyrrolo [2, 3b]-pyrazine derivatives of ~~anyone of the preceding~~ claim 1 wherein R2 and R3, and/or Z and/or R7 are different from H.

37. (original) A method for preparing the pyrrolo [2,3b]-pyrazine derivatives of formula I according to claim 1 comprising reacting alkyl-pyrazines of formula (V) :



(V)

wherein :

R1 and R3 are as above defined, and Alkyl is a C1-C6 alkyl, with aromatic nitriles, R6CN, wherein R6 is as above defined.

38. (currently amended) Pharmaceutical compositions comprising an effective amount of at least one derivative of anyone of ~~claims 1 to 36~~ claim 1 as active principle, in association with a pharmaceutically acceptable carrier.

39. (original) The pharmaceutical compositions of claim 38 for treating or preventing neurodegenerative disorders such as Alzheimer' s disease and Parkison' s diseases.

40. (original) The pharmaceutical composition of claim 38 for treating anti proliferative disorders such as, but not limited to, cancers. This includes, but is not limited to, the use against the proliferation of unicellular or pluricellular parasites, the use against cardiovascular disorders linked to proliferation, the use as herbicides.

41. (currently amended) The pharmaceutical compositions of claim 38, ~~39 or 40,~~ administered in various forms e.g. orally, topically, by injection (intravenously, subcutaneously, intraperitoneally, or rectally).

42. (original) The pharmaceutical composition of claim 41, for administration by the oral route comprising 100 to 1000 mg of active principle per dose unit, preferably 300 to 600 mg.

43. (original) The pharmaceutical compositions of claim 41 under injectable forms, comprising 100 to 1000 mg of active principle preferably 300 to 600 mg, per dose unit.